

[54] **INTRAVASCULAR DEVICE**

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[ \* ] Notice: This patent is subject to a terminal disclaimer.

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#### **Related U.S. Application Data**

[62] Division of application No. 08/662,845, Jun. 12, 1996, Pat. No. 5,693,067, which is a division of application No. 08/164,398, Dec. 9, 1993, Pat. No. 5,527,338, which is a continuation-in-part of application No. 07/939,296, Sep. 2, 1992, Pat. No. 5,443,478.

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[52] U.S. Cl. .... **606/200**

[58] Field of Search ..... 606/1, 198, 200;  
128/898, 899; 623/1, 12

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[57]

#### **ABSTRACT**

A multi-element occlusion device (10, 20, 30, 40) provides an improvement over existing systems by increasing the occupation of a vascular lumen. The device (10, 20, 30) comprises an anchoring element (12, 22, 32), a lead element (14, 24, 34) and at least one fiber (16, 26, 36) attaching said elements. The elements and fibers produce a cumulative occlusive effect greater than the sum of the individual elements. When placed in the blood stream, the anchoring element (12, 22, 32) lodges against the vessel wall and the lead element (14, 24, 34) is carried to a position distal thereto. In another embodiment, an "umbrella" of support members extend from the lead element. A fabric web extends between these support members. The umbrella intravascular device expands upon its exit from the catheter. The fabric web produces complete occlusion of the vessel without the need for thrombosis to form between the elements. With the use of multi-element deployment, the device decreases the risk of continued canalization and recanalization.

**21 Claims, 5 Drawing Sheets**